
Manual for

Low level laser hair restoration lamp GL828



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1 Specifications


Notice: Specification subject to change without notice.




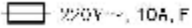







Laser Source	Diode Laser
Wavelength	650nm
Laser Energy	Max. 20mw per diode, adjustable 1-10 levels
Total Laser Amount	128
Laser Panel	4
Timer	Support (1 – 60 min)
Radiation Dimension	550cm2
Power	< 300 Watts
Weight	31Kg
Working Environment	10 – 28℃ 30~80% RH, 500~1060hPa
Power Specification	AC220V/50Hz, 16A or AC110V/60Hz for US/Canada/Japan
Dimension	1140 x 480 x 520mm

1.1 Safety Guideline

The GL828 diode laser hair regrowth system is featured by compact structure, beautiful appearance, reliable performance, convenient operation and perfect safety. The technical specifications of the product have achieved the advanced international standard.

The instrument can be applied to various kinds of skin type and colors, for both female and male. It can be used in ward and private clinics for its portability and compactness. The following symbols appear in this user's manual.

Icon	Description	Location
	<p>The single use of this mark indicates possible danger may be produced near by the marked area of the equipment.</p> <p>Please carefully read the user manual before the operation.</p>	<p>Upside of the hand piece, back of the power supply, near by the emergency stop button</p>

	High voltage area. Do not touch unless professional guide accompanied.	Inside of the equipment
	Manufacture of the equipment	Name board of the equipment
	Category I, type B (application category)	Near by the hand piece
	Fuse mark	Back of the equipment
	CE Mark	Name board ,mannual
	European Representative	Near by the name board
	Grounding place	Circuit inside of the equipment
	Laser product alert	On the surface of product
	Laser product alert	On the surface of product
	Interlocks alert	Backboard of the Product
	Laser emission window	Hand piece applicator

The following information is provided for the correct utilization of GL828 low level diode laser hair regrowth system. The information includes not only the accident protection regulations the products comply with, but also the effective precautions regarding proper use of the products.

The safety regulations comply with can be grouped under 2 categories:

- 1 Electric safety regulation
- 2 Electromagnetic radiation safety regulation

The EMC performance of this system has been evaluated and is in compliance with En 60601-1-2. Better use this system in an environment free of strong electromagnetic field.

Safety note:



- Read this manual to learn all safety requirements and operating procedure before attempting to operate the system.
- High voltage inside the system.
- Set proper parameters before applying treatment on human.
- Do NOT look at the laser directly.
- Warranty void if the machine is disclosed by un-qualified people.

1.2 User's Inspection

Warning

- I Note that the unit has NOT been designed for use in potentially explosive atmospheres. Please take the equipment gently since optical devices inside. Always ensure that any cleansing, degreasing or disinfecting agents applied have evaporated completely before using the unit.

IMPORTANT NOTES

- I Improper use of electrosurgical equipment or non-observance of safety requirements may lead to unexpected hurt to eyes.
- I So carefully read these Operating Instructions prior to using the unit, thus familiarizing yourself with the working principles of the system.

DAMAGE CAUSED IN TRANSIT

The unit as well as its accessories must be checked for potential defects and transport damage/loss immediately upon receipt of the goods.

After transportation, the machine should be stalled in environment with temperature under standard working requirement for at least 24 hours before power on.

2 Technical Description

There are countless causes that can result in hair loss. Stress from major medical procedures, prolonged illness, hormonal imbalances, use of certain medications, infections or just unfortunate genetics. But out of all of these reasons, pattern baldness (male and female) remains the No. 1 cause of hair loss. Contrary to popular belief, hair loss affects both men and women, though men suffer to a significantly larger degree.

Low-level laser treatment is, as the name suggests, the utilization of low-energy light to energize and stimulate your scalp to reinitiate the growth of hair follicles. As long as the lasers are operating within the proper wavelength, the energy can be absorbed into individual cells of the body, resulting in renewed growth of formerly dormant hairs on the scalp.

According to the FDA, Low-level laser treatment resulted in a 90 percent success rate, with average regrowth occurring at a rate of 19 new hairs per centimeter. In fact, photobiostimulation (using light to stimulate biological processes) has been successfully used for the past 30 years to treat pain and a variety of injuries. So the actual technology is nothing new, only its utilization for hair regrowth is novel.

The GL828 laser system utilizes the combination of low level laser light to regenerate damaged hair follicle cells for the stimulation of hair growth. While high level lasers (used for hair removal and skin rejuvenation) work to target and destroy hair follicles as well as other skin blemishes, low level laser therapy (LLLT) works to effectively energize the tissue that surrounds the hair follicles, to stimulate regrowth. The light energy passes through the outer layers of skin and targets damaged cells below. The energy helps to stimulate and regenerate cells so that they may once again perform their normal chemical process of hair production and growth.

Wavelength of 650nm-660nm red laser just in human eye color of the visible spectrum, so we can see the red light 650nm -660nm can penetrate the organization up to 8-10mm, the effective activation and repair cells, stimulate the synthesis of cell metabolism, for the superficial cells biochemical stimulation and hyperemia. Irradiation meridian points to stimulate the meridian points related organizations, the skin tissue will not cause harm to exempt patients fear of needles, and also have the function to stimulate the meridians in a healthy way. Visible and monochromatic laser in mid-600nm range includes a temporary increase a temporary increase in skin blood flow with radiant exposures between 0.12 and 0.36 J/cm². This increase in blood flow is crucial to promoting a healthy hair follicle. It brings the important nutrients into the follicle, like ATP, while taking away harmful waste products such as DHT. ATP increases cellular metabolism and cellular activity. The hair follicle now has the building blocks and energy to transform from a weak follicle to one that is healthy and capable of producing beautiful, thick healthy hair.

3 Structure illustration

Front view:



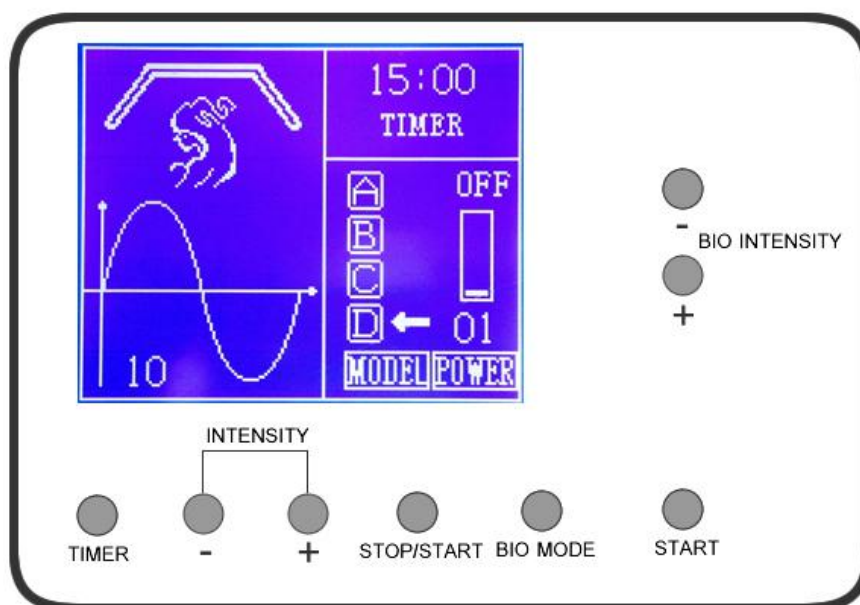
Item	Description
Laser Treatment Panel	Composed by 4 pieces of panels with laser diodes
Control Panel	The operation panel to control the machine
Microcurrent Therapy Probe	The probe to apply microcurrent therapy for hair regrowth
Electric Therapy Probe	The probe to apply electric therapy for hair regrowth

Back view



Item	Description
Microcurrent Therapy Probe Socket	The socket to connect the microcurrent therapy probe
Electric Therapy Probe Socket	The socket to connect the electric therapy probe
Laser Panel Socket	The socket to connect the laser panel cable
Power Socket And Switch	The socket to connect the power cable and turn on/off system

Control Panel



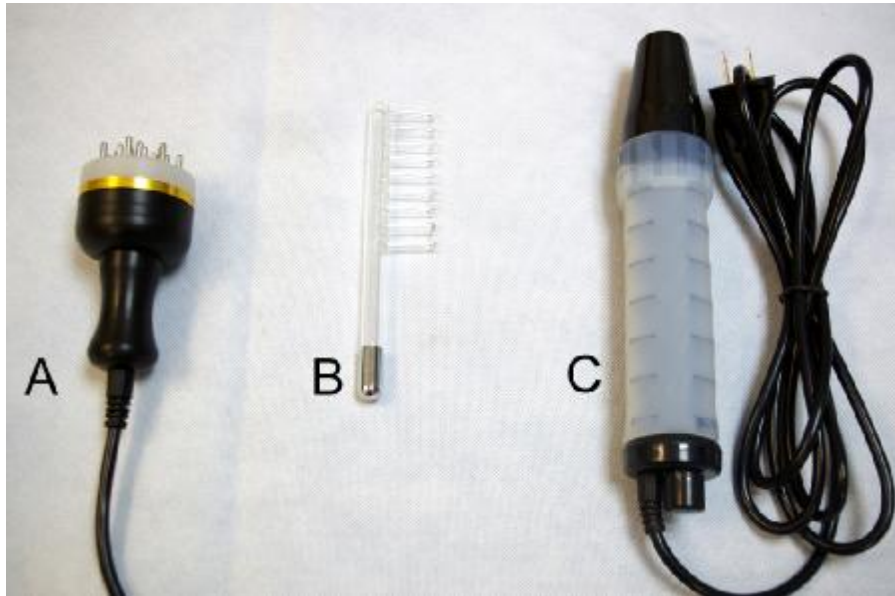
Item	Description
TIME	Set the working timer. When expired, the system halts automatically
INTENSITY (- / +)	Change the laser radiation energy level
STOP/START	Start the laser light or stop at any time
BIO MODE	Set the microcurrent therapy mode (From 1 – 4)
START	Start the microcurrent therapy
BIO INTENSITY	Set the microcurrent energy level

4 Setup and Operation

Setup The GL828 machine

After unpacking, please check to ensure that the instrument is not seriously damaged and accessories are available (see accessories list).

Following accessories can be found:

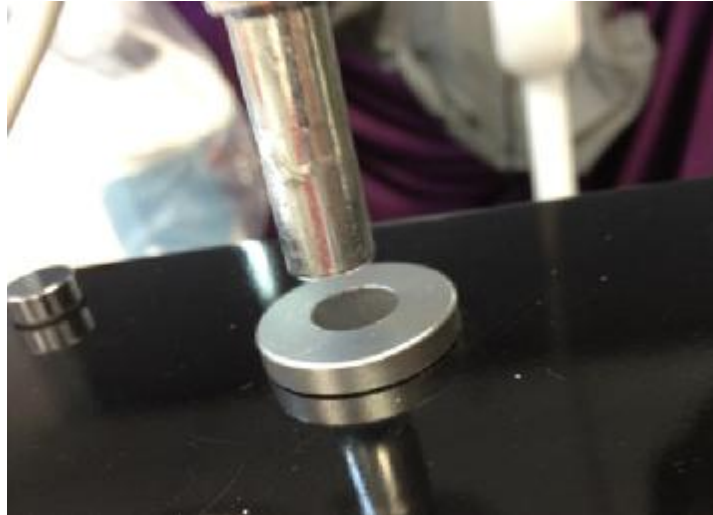


Item	Description
A	Microcurrent Therapy Probe
B	Electric Therapy Comb (made of glass, be careful)
C	Electric Therapy Probe

Install the Electric Therapy Comb into the Electric Therapy Probe. Plug the metal part into the tip of the probe, and make sure it has good contact. The comb is made of glass, so please take care when operate. Follow picture indicates the installed probe.



Install the support pole of the laser panel arm into the hole on top of machine, and connect the panel cable (see above chapter for the detailed position).



Install the microcurrent therapy probe. Plug the interface into the proper socket on back panel of the machine. Check previous chapter for the socket location.

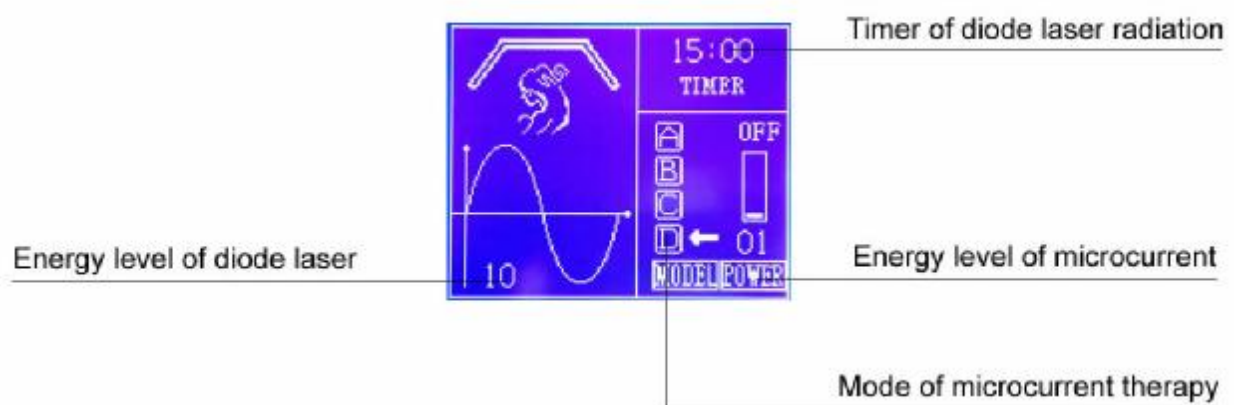
Check if the local power specification follows the requirement of the machine (AC220V or AC110V). The power specification can be found on the data plate on back panel of the machine.

Connect the power cable to the power socket on back panel of the machine. Then power on the machine by the power switch on back of the machine.

Start to operate

Press the power switch on back panel of the machine. Then the indication light will be turned on, and you can hear fan running from inside the machine. The LCD screen will light on.

The diode laser therapy function and microcurrent therapy function can be turned on by pressing corresponding START/STOP button on the control panel.



Diode laser hair regrowth thereapy:

1. Select proper treatment time, by pressing TIMER button. The select timer value will show in the LCD.
2. Select the proper laser energy level, from 1 (least energy) – 10 (highest energy).
3. Press START/STOP button to start laser radiation.
4. The distance between laser panels to hair scalp is recommended to be 5 – 15 cm.
5. Adjust the articulated arm to proper height to start therapy.



6. When the timer expires the machine will stop automatically.

Microcurrent regrowth thereapy:

1. Select proper working mode by pressing BIO MODE button.
2. Select the proper microcurrent energy level. The higher the energy is, the more electric feeling the client would feel.
3. Press START button to start microcurrent therapy.
4. The LED light will turn on, on the microcurrent therapy probe.
5. Operator hold the probe and touch client's scalp, the metal pins should touch client's scalp directly.
6. Operator moves around the probe to start therapy.
7. Recommended treatment time is 15 – 45 minutes.

Electric thereapy:

1. Connect the power plug of the electric therapy probe on back panel of the GL828 machine
2. Power on the probe by tuning the screw button on bottom of the probe.
3. The energy level can be adjusted by the tuner. Choose a proper energy level.

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4. There will be some noise as buzz from inside the probe, that indicates it is working.
 5. There will be weak red light inside the glass made comb.
 6. Use the comb to touch scalp for therapy.
 7. Recommended therapy time is 5 – 30 minutes.

5 Q & A

Is there any reported clinic data or study to tell if LLL is useful for hair loss treatment?

Professor Andre Mester (1964)

In 1964, Professor Andre Mester began experimenting with the use of low-power laser energy in Budapest, Hungary. He observed that low energy laser exposure has a stimulating effect on the biological system, while high-energy laser exposure had an inhibiting effect. In his experiments with wound treatment on mice, he noticed rapid healing due to microcirculation of blood supply. This healing was also obvious in laser light treatment of diabetic patients suffering with dystrophic sores. He was amazed to find sores that would not otherwise heal were healed, and he also observed accelerated hair growth and thickening of hair in the treated areas. This theory through its evolution has since been refined and is widely becoming one of the most popular non-invasive hairloss treatments. Laser researcher Dr. J. Layton Wright states: ... “Laser Hair Therapy increases microcirculation of the hair follicle, which allows nutrients and freshly oxygenated blood to access the hair follicle with the results being a stimulation of the natural hair growth cycle.”

Dr. Trelles (1984)

In 1984, Dr. Trelles showed in one study that patients with alopecia areata who were treated with He-Ne laser 632,8 nm showed a good response. Dr. Trelles reported that most of the patients with alopecia areata responded well after only 6 to 8 treatments administered twice a week for a couple of weeks. The He-Ne laser was placed 30 centimeters from the alopecia areata with dosages ranging from 3-4 Joule per sq. cm. No fibres or lenses were used. In the same study, microscopic evaluation of the hair shaft structure on the alopecia areata irradiated areas showed a clear medulla rich in keratin after treatment. Daily treatments appeared to prevent regrowth, causing irritation with probable increase in hairloss.

Japan Laser Therapy Association (1992)

At the 4th annual Meeting of the Japan Laser Therapy Association in 1992, success was reported with an increase in both hair growth and the density of the hair follicles in the laser treated areas of both male and female stress alopecia and alopecia areata with only one failure out of 40 cases reported in two papers.

Laser Conference, Helsinki Finland (1993)

An unpublished study presented at Laser Conference, Helsinki, Finland 1993 shows the effect of LLLT on Androgenetic Alopecia. A double-blind comparative study with placebo laser for treatment of Hereditary Androgenetic Alopecia in young males was presented in Helsinki 1993 describing the positive effect of LLLT

treatments on hair growth, stop of hairloss and hair shaft tensile strength. At the Helsinki Laser Conference research results demonstrating the effect of LLLT compared to a placebo group was presented. It was found that hair re-growth was clearly shown in the laser group. In addition all patients, with the exception of one, in the laser-treated group showed a complete stop of hairloss. All patients, except 3, showed a clear hair re-growth of hair with a reduction of at least one category in the Hamilton classification. Post-treatment showed the dermis with almost the same amount of hair follicles as pretreatment, although a number of new follicles could be seen with clearly noticeable hair growth. 50% of the follicles are now in the anagen phase (growth). When comparing the histological findings, transformation into anagen hair follicles could be observed in 83% of the patients on laser treatment but in none of the placebo patients. Out of 18 patients, 14 showed an increase in hair thickness, and all 18 showed improvement in general hair shaft quality measured with the hair stretcher. The results showed no improvement in the placebo group or any adverse effects of the treatment.

Prof. Pekka J. Pöntinen (1996)

Professor Pöntinen is one of the pioneers of LLLT in Scandinavia thorough theoretical and practical studies on how to apply low level laser therapy in the treatment of chronic, especially musculoskeletal and myofascial pain and dysfunction, vascular disturbances, wound and ulcer treatment etc. Prof. Pekka J. Pöntinen established the beneficial effect of Laser Hair Care® on scalp blood flow and published his results in 1996. The effects of hair lasers on skin blood flow were measured on three different devices to establish the effect of scalp blood flow. The hair lasers used were Laser Hair Care (670 nm), a He-Ne (632.8 nm) laser containing one laser transferring light via fibres and lenses to the patient and a laser identical to the Laser Hair Care where the lasers were replaced (placebo). The differences in the laser systems are illustrated by the fact that Laser Hair Care increased scalp blood flow by 54%. The He-Ne hair laser had no effect while the Placebo decreased flow rate by 36%. In addition, the skin temperatures measured before and after the treatment showed little change.

European Studies (1997)

In 1997 a European group of scientist's published their work on LLLT in the treatment of alopecia of the scalp. The authors tried to verify the efficacy of low energy laser (LLLT) in scalp alopecia. Sixty patients were divided in two groups: A) laser group, 33 patients treated with both LLLT and classical therapy; B) control group, 27 patients treated only with classical therapy. Before, during and after treatment, histological samples were done. For the group A the results were rather superior but in a twice shorter time shorter time than group B. The maintenance of the good results needed classical therapy for a long period. They conclude that LLLT therapy could have a useful complementary method for the treatment of scalp alopecia. The same European group of scientist's published their findings on LLLT use in the treatment of alopecia and crural ulcers in 1998. The authors tried to verify the efficacy of LLLT in scalp alopecia and crural ulcers of different causes. Laser used was (red diode, continuous emission, 8 mW power, wave length 670 nm spot size about 5 mm diameter on some points. They also use as control classical therapy. Before, during and after treatment, histological samples were taken from alopecia regions. For the laser groups (alopecia and ulcers) the results were rather superior and in a three or twice time shorter than the control group. They conclude that LLLT therapy is a very useful complementary method for the treatment of scalp alopecia and crural ulcers.

Who is the best one to use the LLL for hair loss treatment?

Low level laser hair therapy is the long anticipated answer for the hair transplant specialist challenged by the

ineligibility to perform transplant procedures on certain individuals primarily due to the following scenarios:

Patients with early stages of hair loss -- typically those individuals presenting with hair loss equivalent to Norwood 1-3 -- with too much growing existing hair on the top of the head so that the option to transplant hair from the back of the head or “donor area” would cause “hair shock” or “hair trauma” to existing growing hair, thus accelerating loss of existing hairs.

When can I see the change after the treatment?

Reduction in the appearance of hair loss usually occurs after five to six treatments. Some patients have also reported the appearance of hair growth after 10-12 treatments. Over time, all users, both men and women, usually notice progressively increasing benefits of the treatment program.

Is it safe to take the LLL treatment?

Low level laser hair therapy meets all international safety standards and legislative specifications of a “non-significant risk” product. The Low Level Laser Hair Therapy device is safe and is classified as a Class IIIA cosmetic laser.

The energy produced by the photons does not have the thermal component to cause thermal injuries to users or operators. Laser light energy does not change or alter molecular structures.

How to maintain the machine?

Generally the machine does not need maintain. When clean the machine, please notice do not use alcohol to clean the surface especially the laser panel, or the coated foam will be damaged.

What I shall do if the laser machine GL828 stops working?

There could be multiple reasons:

- 1) Please check if the power cable is well connected.
- 2) Please check if the laser panel cable is well connected.
- 3) Please check if the power switch is turned on.
- 4) Please check if the fuse is broken (at the position of power socket)
- 5) After power on the machine, does the LCD is lit on or not.
- 6) Please contact with Beijing Goldenlaser Support team.

The mail address is info@golden-laser.org

6 Packing List

Name	Account
GL828 Main Unit	1 set

Laser panels with arm(big)	1 p/c
Microcurrent Therapy Probe	1 p/c
Microcurrent Therapy Comb	1 p/c
Electric Therapy Probe	1 p/c
Power cable	1 p/c
Operation Manual	1 copy

7 Technical Support

Quick trouble shooting:

Problem	Trouble shooting
Machine does not power on	<ol style="list-style-type: none"> 1. Check if light in the power switch is turned on. If not: <ol style="list-style-type: none"> a. Check if power is supplied normally, as well as power cable b. Check if fuse broken (inside the power switch) c. Call us 2. Check if any sound from inside of the machine.
Diode laser diodes do not light on	<ol style="list-style-type: none"> 1. Check if panel cable is connected to the main machine 2. Check if timer is set (not zero) 3. Check if START/STOP button is pressed
Microcurrent therapy probe does not work	<ol style="list-style-type: none"> 1. Check if the cable is connected firmly 2. Check if BIO MODE is selected 3. Check if START button is pressed. 4. Check if BIO function is shown as OFF or ON on LCD screen
Electric therapy probe does not work	<ol style="list-style-type: none"> 1. Check if the power cable is connected to the back panel of the machine. 2. Check if the machine is powered on. 3. Check if the glass made comb has been installed firmly. 4. Check if the tuner on bottom of the probe is turned on. 5. Check if the glass made comb is broken.